IN THE CLAIMS:

Please amend Claim 26 as follows:

26. (Three Times Amended) A composition comprising DNA obtained by a process of claim 1 and a pharmaceutically acceptable carrier, wherein said DNA has a chromosomal content that is less than or equal to 0.01%, and an endotoxin content that is less than or equal to 50 EU/mg, and said DNA is free of organic solvents, enzymes of animal origin, polyethylene glycol, ammonium acetate, ethidium bromide, and $CaCl_2$.

REMARKS

The foregoing amendment and the following remarks are submitted in response to the Office Action of September 26, 2000. In this amendment, Applicants have amended Claim 26 in order to more particularly point out and distinctly claim that which Applicants regard as the Invention. Support for amended Claim 26 can be found generally throughout the instant Specification, and particularly on page 2, lines 25-28 through page 3, lines 1-4; and pages 27-31 of the instant Specification.

The Invention is Novel

Claims 25 and 26 have been rejected under 35 U.S.C. § 102(e) as being anticipated by the teachings of U.S. Patent 5,674,997 to Woodard *et al.* (the '997 patent). The Examiner has asserted the '997 patent teaches that plasmid DNA needs to be highly purified to remove CsCl and small contaminants. The Examiner also believes the '997 patent teaches a method for purifying wherein pure water is used to elute DNA that is free of chaotropes. Thus, it is the opinion of the Examiner that a plasmid produced with the method of the '997 patent would be pure, and would anticipate the instant Claims. In addition, the Examiner has asserted that highly

pure DNA resulting from conventional purification methods, such as that described in the '997 patent, would be deemed pharmaceutical grade because, in the Examiner's opinion, "pharmaceutical" is merely one description for highly purified plasmid DNA. The Examiner further believes the DNA purified with the method described in '997 patent would inherently have low levels of endotoxin impurities.

Furthermore, Claims 25 and 26 have been rejected under 35 U.S.C. § 102(a) as being anticipated by prior art as "admitted by Applicants." The Examiner has asserted that at pages 1 and 2 of the instant Specification, Applicants teach that conventional laboratory methods of producing plasmid DNA for pharmaceutical purposes were inadequate because the methods could not be readily scaled up. In particular, the Examiner cites the fourth paragraph of page 1, wherein Applicants state "[t]wo of these laboratory methods are those which are most frequently employed and which give the best results." The Examiner also asserted that on page 2 of the instant Application, Applicants criticize heretofore known methods of purifying plasmid DNA for the use and possible residue of ethidium bromide and enzymes of animal origin. However, the Examiner has noted these contaminants are not excluded from the claimed compositions. Thus, it is the Examiner's belief that Applicants' comparison of the advantages of the disclosed and claimed ceramic hydroxyapatite method with older, slower, and smaller scale methods in the prior art, is understood to be a tacit admission that the older methods produced the same product, albeit less easily.

Applicants respectfully traverse these rejections. Contrary to the Examiner's assertion, the '997 patent does not teach a method for purifying wherein pure water is used to elute DNA that is free of chaotropes. Indeed, lines 28-34 in column 2 of the '997 patent specifically explain

that:

> The present invention relates to a silicon-containing material which exhibits sufficient hydrophilicity and sufficient electropositivity to bind DNA from a suspension of cellular components and permit elution of the DNA from the material. ***It has been found that much lower concentrations of chaotropes or alcohols can be utilized to achieve purification of DNA using the instant silicon-containing materials*** (emphasis added).

This passage makes clear that the method described in the '997 patent uses a chaotrope when eluting DNA. Moreover, the method described in Example 3 of the '997 patent for eluting DNA utilized $NaClO_4$. It is clearly admitted in column 5, line 47 of the '997 patent that $NaClO_4$ is ***a chaotrope.*** Thus, the Examiner is not correct in asserting that the '997 patent teaches methods of purifying DNA that do not utilize a chaotrope.

In stark contrast to the teachings of the '997 patent, the instant Invention does ***not*** utilize chaotropes in purifying DNA. Rather, phosphate buffers of varying ionic strength are used to separate RNA from plasmid DNA to produce pharmaceutical grade DNA plasmids. Thus, isolated and purified DNA plasmids obtained with a method of the instant Invention are ***free*** of such chaotropes. MPEP § 706.02 specifically states that:

> ...for anticipation under 35 U.S.C. 102, the reference must teach ***every aspect*** of the claimed invention either explicitly or impliedly. Any feature not directly taught must be inherently present (emphasis added).

The '997 patent clearly does not teach an isolated plasmid DNA having every aspect of a DNA plasmid set forth in amended Claim 26. Thus, DNA plasmids of the instant Invention are novel with respect to the teachings of the '997 patent, and this rejection is obviated.

Furthermore, the Examiner is incorrect in asserting that Applicants have tacitly admitted

that older methods described on pages 1-2 of the instant Application produce the claimed product. On the contrary, fundamental and significant differences exist between heretofore known methods of purifying DNA plasmids, and Applicants' novel, useful, and nonobvious method. Indeed, unlike heretofore known methods, the instant Invention does not require the use of enzymes, detergents, etc. to purify plasmid DNA. Thus, it is explained on page 2, lines 25-28 through to page 3, lines 1-6 of the instant Specification that:

> The present invention describes a simple, and particularly efficient, novel process for purifying DNA. The process that is described in the present invention enables a DNA of very high purity to be produced in large quantities. Particularly advantageously, the process that is described in the present application makes it possible to avoid using toxic organic solvents and enzymes of animal origin. It also makes it possible to dispense with large numbers of tedious centrifugations which are difficult to extrapolate and are of low yield because, in particular, of precipitation steps using PEG, ammonium acetate, or $CaCl_2$.

Heretofore known methods for purifying DNA plasmids utilize materials such as organic solvents, enzymes of animal origin, etc. to purify DNA plasmids. Thus inherently, plasmids purified with these methods contain these materials as impurities. ***However, the instant Invention does not utilize such materials. Thus, purified DNA plasmids of the instant Invention are free of these materials.*** Consequently, DNA plasmids of the instant Invention are clearly novel, and this rejection is obviated.

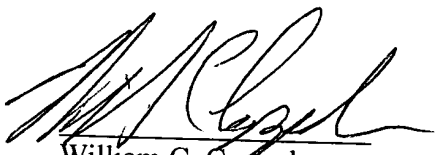
Fees

No fees are believed to be necessitated by the instant response. However, should this be in error, authorization is hereby given to charge Deposit Account no. 19-1982 for any underpayment, or to credit any overpayments.

CONCLUSION

Applicants respectfully request entry of the foregoing amendments and remarks in the file history of the instant Application. The Claims as amended are believed to be in condition for allowance, and reconsideration and withdrawal of all of the outstanding rejections is therefore believed in order. Early and favorable action on the claims is earnestly solicited.

Respectfully submitted,



William C. Coppola
Attorney for Applicant(s)
Registration No. 41,686

AVENTIS PHRAMACEUTICALS PRODUCTS INC.
Route 202-206; Mail Stop: EMC-G1
P.O. Box 6800
Bridgewater, NJ 08807
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